



Control Number: 50595



Item Number: 206

Addendum StartPage: 0

City of Lexington

RECEIVED
2021 JUN 05 AM 10:50
P.O. BOX 56
LEXINGTON, TEXAS 78947

June 1, 2021

Public Utility Commission of Texas
1701 N. Congress Avenue
Austin, Texas 78711

Dear Mr. Dwyer and the PUC of Texas,

The City of Lexington has completed the attached training in response to HB4150. Attached please find the full training program outlining the hazards associated with the City of Lexington's service territory.

Additional Attachments include:

1. Summary of the training provided to staff
2. Roster of individuals and dates they have been provided the training
3. Lexington Hazard Observation Form
4. Ordered updated copy of the NEC Manual (2020)

Should you have any questions or need any additional information, please do not hesitate contact me.

Thank you,



Floyd Lovings
Electrical Department
(979) 716-9512
604 Wheatley Street
Lexington, Texas 78947

206

Peter M. Lake
Chairman
Will McAdams
Commissioner



Greg Abbott
Governor

Thomas J. Gleeson
Executive Director

Public Utility Commission of Texas

May 18, 2021

Tina Biehle
City Secretary
City of Lexington
604 Wheatley Street
Lexington, TX 78947

Dear Ms. Biehle,

On April 5, 2021, the Public Utility Commission of Texas notified you by mail that the City of Lexington filed a late and incomplete report in the Commission's Line Inspection and Safety program pursuant to 16 TAC § 25.97(d). The rule requires owners or operators of overhead transmission or distribution voltage facilities to file a report summarizing training programs and materials used to instruct your employees on hazards recognition and compliance with construction standards of the National Electric Safety Code.

In its late-filed report, the City did not provide a summary description of the hazards recognition training documents. If the City does not use hazards recognition training documents, the City must indicate this in writing. Additionally, the City did not provide a summary description of the training program it provides its employees on construction standards under the National Electric Safety Code.

The City does own or operate distribution service lines. Therefore, the City is required by law to file this report. As of the date of this letter, the City has made no attempt to correct these deficiencies.

Accordingly, the Commission will open an enforcement case as soon as two weeks from the date of this letter unless the City submits a revised report curing all deficiencies. This revised report must be filed in Project No. 50595, *Training Reports for Line Inspection and Safety*. Failure to file this report may result in an administrative penalty.

If you have any questions, please do not hesitate to contact me.

Sincerely,

Davida Dwyer
Deputy Director
Legal Division



Printed on recycled paper

An Equal Opportunity Employer

House Bill 4150

Law and Hazard Recognition Training

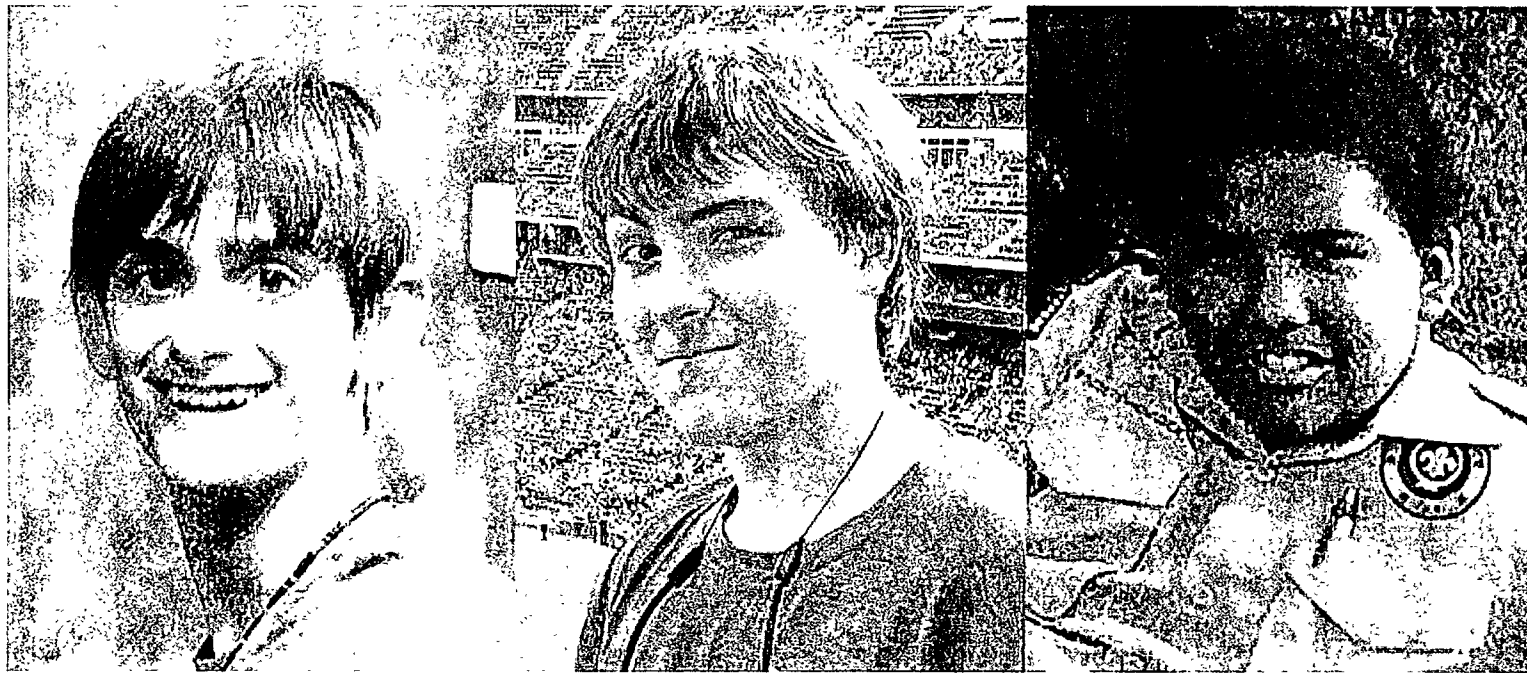
HB 4150 Law

- a summary description of the utility's hazard recognition training program(s) for transmission and distribution facilities provided by the utility to its employees and contractors;
- a summary description of the training programs provided by the utility to its employees and contractors related to the National Electric Safety Code and United States Corps of Engineers regulations and design requirements for the construction of electric transmission and distribution lines.

Why are we here?

- From left, East Texas Boy Scouts Will Brannon, 17, Heath Fauchaux, 16, and Thomas Larry, 11, died in a 2017 sail boating accident at Lake O' the Pines when the mast of their boat hit a power line. Legislation that would require all utilities to make regular inspections of their power lines to ensure those high-voltage carriers comply with state and federal height and other safety regulations unanimously passed the Texas House of Representatives on Friday and now heads to the Senate, where it is expected to pass with little or no dissent. House Bill 4150 has been renamed the Will Thomas Heath Powerline Safety Act in memory of the three Scouts.

From Left to Right East Texas Boy Scouts Will Brannon, 17, Heath Faucheux, 16, and Thomas Larry, 11, died in a 2017



Importance of Hazard Recognition for Overhead Power lines

- Energized and de-energized powerlines can be dangerous
- <https://www.youtube.com/watch?v=DvUxBKDomcU>
 - City Personnel
 - The public

Should VS Shall

- Should - used to indicate obligation, duty, or correctness, typically when criticizing someone's actions.
- Shall - expressing a strong assertion or intention.

Importance of an intact system grounding system

- Definition : Grounded – connected to or in contact with earth or connected to some extended conductive body that serves instead of earth.
 - Grounding for the purpose of protecting employees has two main requirements:
 - To cause immediate operation of protective devices in case of accidental energizing of the lines or equipment
 - To prevent each employee from being exposed to hazardous differences in electrical potential
 - It's important to note that utility grounding is different than permanent grounding. Permanent grounding systems in buildings are installed so that no current flows except in fault conditions. However, in utility grounding systems current always flows, even in permanent grounds.

Importance of an intact system grounding system continued

- De-energized circuits can accidentally become energized
 - Human Error
 - Lightning
 - Back-feed
 - Contact with energized circuits
 - Induced voltage

NESC Section 9: Grounding Methods

- Purpose
 - Provide practical methods of grounding, as one of the means of safeguarding employees and the public from injury that may be caused by electrical potential
 - Direct Current Systems
 - Alternating Current Systems
 - Messenger Wires and Guy
 - Current in Grounding Conductors
 - Fences

Direct Current Systems

- 750V and below
 - Connection shall be made only at supply stations
 - In 3 wire, connection shall be made to the neutral
- Over 750 Volts
 - Connection shall be made at the supply and load stations and at the neutral of the system
 - The grounding electrode may be external to or remotely located from each of the stations.
 - Exception: Where stations are not geographically separated as in back to back converter stations, the neutral of the system should be connected to the ground at one point only.

Alternating Current Systems

- 750 V and Below
 - Wye-connected three phase four wire system or on a single phase three wire system, ground shall be connected to the neutral conductor.
 - Three phase three wire system whether derived from a delta connected or ungrounded wye connected transformer installation not used for lighting, may be any of the circuit conductors, or may be a separately derived neutral.
 - The grounding connection shall be made at the source and the line side of all service equipment
- Over 750 V
 - Non-Shielded – Ground connection shall be made a the neutral of the source
 - Shielded See Section 9 for placement
 - Surge-Arrestor cable-shielding interconnection
 - Cables without insulating jacket
 - Cables with insulating jackets
 - Separate Grounding Conductor

Messengers Wires and Guys

- Messenger Wires
 - Required to be grounded shall be connected to grounding conductors as poles or structures to total and no less than the number of grounding locations shown below
 - See Section 9 Rules 093C1, 093C2, 093C5, four connections in each 1.6 KM (1 mi)
 - Exception See Section 9 092 C1a river crossings or mountainous areas.
- Guys – shall be effectively grounded to one or more of the following
 - An effectively grounded metallic supporting structure
 - An effective ground on a nonmetallic supporting structure
 - An effectively grounded neutral conductor.
- Common grounded of messengers and guys on the same supporting structure
 - One grounded conductor that is grounded at the structure
 - Separate grounding conductors or messengers bonded together and grounded at that structure
 - One or more grounded line conductors or grounded messengers that are bonded together at that structure or elsewhere and multi-grounded elsewhere at intervals as specified in **Rules 092C1 and 092C2**

Current in Grounding Conductor

- Ground connection points shall be arranged so that under normal circumstances there will be no objectionable flow of current over the grounding conductor.
- Should objectional flow of current occur over the grounding conductor due to the use of multi-grounds, **See Section 9 092 D 1-5**

Fences

- Conductive electrical supply station fences that are required to be grounded by Part 1 of the code
 - Shall be designed to limit
 - Touch potential
 - Step potential
 - Transferred voltages
 - See Fence grounding requirements **Section 9 092 E 1-6**

SAFETY RULES FOR OVERHEAD ELECTRICAL SUPPLY AND COMMUNICATIONS LINES

- Purpose
 - The practical safeguarding of persons during the installation, operations or maintenance of the overhead supply and communications lines and their associated equipment.
 - Spacing
 - Clearances
 - Strength of Construction

Note: Does not cover installation in electrical supply stations except as required by **rule 162A**.

INSPECTION AND TEST OF LINES AND EQUIPMENT

- In service
 - Initial compliance with rules
 - Lines and equipment shall comply with all safety rules when placed in service.
 - Inspections
 - Lines and equipment shall be inspected at intervals as experience has shown to be necessary.
 - Test
 - When considered necessary, line and equipment shall be subject to practical test to determine required maintenance.
 - Inspection Records
 - Conditions and defects affecting compliance shall be recorded, if not promptly corrected.
 - Corrections
 - Recorded conditions or defects that would be reasonably be expected to endanger human lives or property shall be promptly corrected.
 - Other conditions or defects shall be designated for correction.

INSPECTION AND TEST OF LINES AND EQUIPMENT CONT.

- Out of service
 - Infrequently used lines shall be inspected or tested as necessary before being placed in service.
 - Temporarily out of service lines shall be maintained in a safe condition.
 - Permanently abandoned lines shall be removed or maintain in a safe condition.

SUPPORTING STRUCTURES

- Protection of structures
 - Mechanical damage
 - Fire
 - Attached to bridges
- Readily climbable supporting structures
 - Shall be equipped with barriers to inhibit climbing by unauthorized persons or posted with appropriate safety signs
 - Steps must be 2.45 m or 8 ft from the ground
 - Standoff brackets shall be arranged with not less than 2.45 m or 8 ft between the lowest bracket and ground or other accessible service or the two lowest brackets.

SUPPORTING STRUCTURES CONT.

- Identification
 - Shall be constructed, located, marked or numbered to facilitate identification by employees authorized to work thereon.
- Attachments, decorations, and obstructions
 - No attachments without the concurrent of the structure owner
 - No attachments which cause non-compliance
 - No obstruction to climbing space or present climbing hazard to utility personnel
- Unusual conductor supports
 - Additional precautions shall be taken to avoid damage to the structure or injury to persons using them

PROTECTION AND MARKING OF GUYS

- Grounding end of anchor guys exposed to pedestrian traffic shall be provided with substantial and conspicuous markers
- Anchors located in established parking areas shall be protected from vehicle contact or marked.
 - Guy Guards

VEGETATION MANAGEMENT

- Vegetation management should be performed around supply and communications lines as experience has shown to be necessary
- Where pruning or removal is not practical, the conductor should be separated from the tree with suitable materials or devices to avoid conductor damage by abrasion and grounding of the circuit through the tree.
- Line crossing, railroad crossings, limited-access highway crossing or navigable waterways requiring crossing permits
 - The crossing span and the adjoining span on each side of the crossing should be kept free from overhanging or decayed trees or limbs that otherwise might fall into the line.

CLEARANCES

- Application
 - Permanent and temporary installation
 - Clearances of section 23 are required for all permanent and temporary installations
 - Emergency installation
 - Clearances required in section 23 may be decreased for emergency installations if the conditions in **section 230 a 2 a-e are met. See section 23**
 - Measurement of clearance and spacing
 - Unless otherwise stated, all clearance shall be measured from surface to surface and all spacing shall be measured center to center.
 - Rounding or calculation results
 - Unless otherwise specified in a table or rule within section 23, clearance specification that require a calculation to determine the required clearance shall have the resultant of the calculation rounded up to the same level of decimal places as the base value shown in the rule or table.

CLEARANCES CONT.

- Ice and wind loading for clearances
 - Use the four general degrees of loading due to weather conditions designated in clearance zones 1,2,3 and 4
 - **See section 230 b 1-5 for clarification**

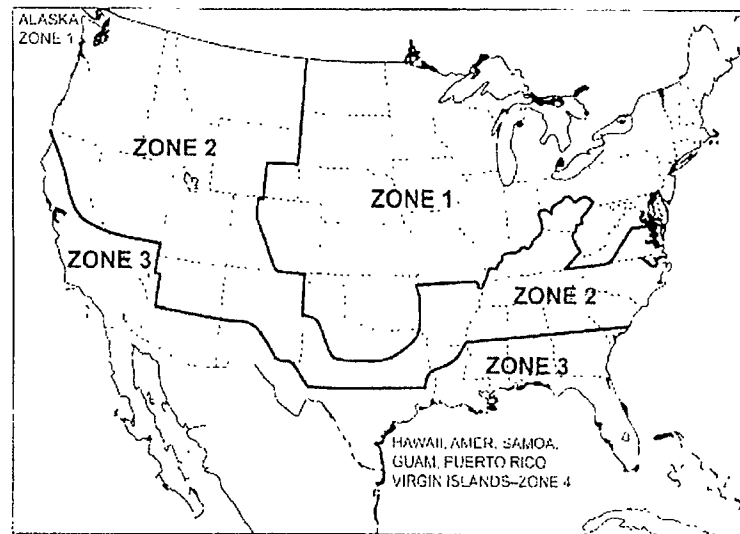


Figure 230-1—Clearance zone map of the United States

CLEARANCES CONT.

- Supply cables
 - For clearance purposes, supply cables, including splices and taps, conforming to any of the requirements in section c are permitted lesser clearances than open conductors of the same voltage
- Covered conductors
 - Covered conductors shall be considered bare conductors for all clearance requirements except that clearance between conductors of the same or different circuits, including grounded conductors, may be reduced below the requirement for open conductors when the conductors are owned, operated or maintained by the same person and when the conductor covering provide sufficient dielectric strength to limit the likelihood of short circuit in case of momentary contact between conductors or between conductors and the grounded conductor.
- Neutral conductors
 - Neutral conductors effectively grounded and associated with circuits of 22kv to ground may have the same clearance as guys and messengers
 - All other neutral conductor shall have the same clearances as the phase conductors of the circuit with which they are associated.
- Fiber-optic cable supply
 - See section 230 f for requirements

CLEARANCES CONT.

- Alternating and direct-current circuits
 - The rules of section 230 are applicable for both ac and dc circuits
- Constant-current circuits
 - Clearances for constant-current circuits shall be determined on the basis of their normal full load voltage
- Maintenance of clearances and spacings
 - Clearances and spacing required shall be maintained at the values an under the conditions specified in section 20 of the applicable edition.

Vertical Clearance of Wires 232-1 in FT

Name of Surface Underneath Conductor	Insulated Communications Conductor (ex. tv, cable, telephone)	Non-Insulated Communications Conductor 0-750 V (ex. tv, cable, telephone)	Supply Cables over 750 V (ex. electrical supply line/URD riser)	Open Supply Conductors over 750V to 22kV (ex. OH Primary conductor)	Trolley and Electrified Railroad Contact Conductors 0-750V	Trolley and Electrified Railroad Contact Conductors 750-22kV
--------------------------------------	--	--	--	--	--	--

General Information from Table 232.1 and should be actual table should be reviewed if verification is necessary.

1. Track Rails of Railroads	23.5	24.0	24.5	26.5	22.0	22.0
2. Roads Streets	15.5	16.0	16.5	18.5	18.0	20.0
3. Driveways and Parking lots	15.5	16.0	16.5	18.5	18.0	20.0
4. Other Areas Traversed by Vehicles	15.5	16.0	16.5	18.5	-	-
5. Spaces and Ways Subject to Pedestrians	9.5	12.0	12.5	14.5	16.0	18.0
6. Water Areas Not Suitable for Sail boating or where sail	14.0	14.5	15.0	17.0	-	-

Vertical Clearance of Wires 232-1 in FT Cont.

Name of Surface Underneath Conductor	Insulated Communications Conductor	Noninsulated Communications Conductor 0-750 V	Supply Cables over 750 V	Open Supply Conductors over 750V to 22kV	Trolley and Electrified Railroad Contact Conductors 0-750V	Trolley and Electrified Railroad Contact Conductors 750-22kV
--------------------------------------	------------------------------------	---	--------------------------	--	--	--

General Information from Table 232.1 and should be actual table should be reviewed if verification is necessary.

7. Water Areas Suitable for Sail boating

a. Less than 20 acres	17.5	18.0	18.5	20.5
b. Over 20 to 200 acres	25.5	26.0	26.5	28.5
c. Over 200 to 2000 acres	31.5	32.0	32.5	34.5
d. Over 2000 acres	37.5	38.0	38.5	40.5

8. Established Boat ramps and associated rigging areas. Areas posted with sign(s) for rigging or launching sail boats

Clearance above ground shall be 5 feet greater than in 7 above, for the type of water areas served by the launching site.

9. Roads, streets or alleys	15.5	16.0	16.5	18.5	18.0	20.0
10. Roads where it is unlikely that vehicles will be crossing under the line	13.5	14.0	14.5	16.5	18.0	20.0

Clearance of Wires, Conductors, Cables and equipment from buildings, bridges, rail cars, swimming pools and other installations

- Horizontal clearance requirements are specified for 2 conditions
 - Vertical and horizontal clearances (no wind displacement)
 - Horizontal clearances (with wind displacement)
 - In each case, the clearance requirements for both conditions shall be satisfied.
- Transition between horizontal and vertical clearances
 - The horizontal clearance governs above the level of the roof or top of an installation to the point where the diagonal equals the vertical clearance requirement.

Clearance of Wires, Conductors, Cables and equipment from other supporting structures

- Horizontal clearances (without wind)
 - A horizontal clearance, without wind, of not less than, 1.5 m 5 ft for voltages up to 22 kV
 - When displaced by wind see table below

Conductor or cable	Horizontal clearance required when displaced by wind	
	(m)	(ft)
Open supply conductors, 0 to 750 V [†]	1.1	3.5
230C2 cable, above 750 V	1.1	3.5
230C3 cable, above 750 V	1.1	3.5
Open supply conductors, over 750 V to 22 kV	1.4	4.5

[†] Does not include neutral conductors meeting Rule 2301.1

Clearance of Wires, Conductors, Cables and equipment from other supporting structures Cont.

- Vertical Clearances

- A vertical clearance of not less than 1.4 m 4.5 ft for voltages up to 22 kV.
 - For Exceptions see 234 B 2
- The wires, conductors or cables above and the supporting structure of another line below are operated and maintained by the same utility.
- Employees do not work above the top of the supporting structure unless:
 - Upper circuit is de-energized and grounded or temporarily insulated or repositioned or
 - Other equivalent measures are taken.

Table 234-1 Clearances

Table 234-1—

Clearance of wires, conductors, cables, and unguarded rigid live parts adjacent but not attached to buildings and other installations except bridges

(Voltages are phase to ground for effectively grounded circuits and those other circuits where all ground faults are cleared by promptly de-energizing the faulted section both initially and following subsequent breaker operations. See the definitions section for voltages of other systems. Clearances are with no wind displacement except where stated in the footnotes below.)

See Rules 234A, 234C1a, 234C2 and 234H4.)

Clearance of	Insulated communication conductors and cables, messenger, overhead shield, surge-protection wires, effectively grounded portions of guys meeting Rules 215C2 and 279A1 or 300 V, or neutral conductors meeting Rule 230C1 (f)	Unguarded rigid live parts, 0 to 750 V, noninsulated communication conductors, ungrounded equipment cases, 0 to 750 V, and 230C2 or 230C3 exposed to open supply conductors of over 300 V to 750 V (f)	Supply cables over 750 V, ungrounded equipment cases, 750 V to 22 kV, ungrounded portions of guys meeting Rules 215C2 and 279A1, or 300 V, or neutral conductors meeting Rule 230C1 (f)	Unguarded rigid live parts over 750 V to 22 kV, ungrounded equipment cases, 750 V to 22 kV, ungrounded portions of guys meeting Rules 215C2 and 279A1, or 300 V, or neutral conductors meeting Rule 230C1 (f)	Open supply conductors over 750 V to 22 kV (f)
1. Buildings					
a. Horizontal					
(1) To walls, roofs, eaves, and gabled windows	4 ft	5 ft	6 ft	8 ft	9 ft
(2) To unguarded windows	4 ft	5 ft	6 ft	8 ft	9 ft
(3) To balconies and accessibly accessible pedestrian ways	4 ft	5 ft	6 ft	8 ft	9 ft
b. Vertical					
(1) Over open roofs or floors readily accessible to pedestrians	10 ft	11 ft	12 ft	14 ft	15 ft
(2) Over under-eave balconies, decks, or similar structures readily accessible to pedestrians	10 ft	11 ft	12 ft	14 ft	15 ft

Table 234-1— (continued)

Clearance of wires, conductors, cables, and unguarded rigid live parts adjacent but not attached to buildings and other installations except bridges

(Voltages are phase to ground for effectively grounded circuits and those other circuits where all ground faults are cleared by promptly de-energizing the faulted section both initially and following subsequent breaker operations. See the definitions section for voltages of other systems. Clearances are with no wind displacement except where stated in the footnotes below.)

See Rules 234A, 234C1a, 234C2 and 234H4.)

Clearance of	Insulated communication conductors and cables, messenger, overhead shield, surge-protection wires, effectively grounded portions of guys meeting Rules 215C2 and 279A1, or 300 V, or neutral conductors meeting Rule 230C1 (f)	Unguarded rigid live parts, 0 to 750 V, noninsulated communication conductors, ungrounded equipment cases, 750 V to 22 kV, ungrounded portions of guys meeting Rules 215C2 and 279A1, or 300 V, or neutral conductors meeting Rule 230C1 (f)	Supply cables over 750 V, ungrounded equipment cases, 750 V to 22 kV, ungrounded portions of guys meeting Rules 215C2 and 279A1, or 300 V, or neutral conductors meeting Rule 230C1 (f)	Unguarded rigid live parts over 750 V to 22 kV, ungrounded equipment cases, 750 V to 22 kV, ungrounded portions of guys meeting Rules 215C2 and 279A1, or 300 V, or neutral conductors meeting Rule 230C1 (f)	Open supply conductors over 750 V to 22 kV (f)
2. Structures, ranges, decks, and stairs					
(1) To ranges, decks, and stairs	4 ft	5 ft	6 ft	8 ft	9 ft
(2) To balconies, decks, and stairs	4 ft	5 ft	6 ft	8 ft	9 ft
3. Signs, chimneys, antennas, flagpoles and flags, banners, tanks, and other installations not classified as buildings or bridges					
a. Horizontal					
(1) To portions readily accessible to pedestrians	4 ft	5 ft	6 ft	8 ft	9 ft
(2) To portions readily accessible to pedestrians	4 ft	5 ft	6 ft	8 ft	9 ft

Table 234-1— (continued)

Clearance of wires, conductors, cables, and unguarded rigid live parts adjacent but not attached to buildings and other installations except bridges

(Voltages are phase to ground for effectively grounded circuits and those other circuits where all ground faults are cleared by promptly de-energizing the faulted section both initially and following subsequent breaker operations. See the definitions section for voltages of other systems. Clearances are with no wind displacement except where stated in the footnotes below.)

See Rules 234A, 234C1a, 234C2, and 234H4.)

Clearance of	Insulated communication conductors and cables, messenger, overhead shield, surge-protection wires, effectively grounded portions of guys meeting Rules 215C2 and 279A1, or 300 V, or neutral conductors meeting Rule 230C1 (f)	Unguarded rigid live parts, 0 to 750 V, noninsulated communication conductors, ungrounded equipment cases, 750 V to 22 kV, ungrounded portions of guys meeting Rules 215C2 and 279A1, or 300 V, or neutral conductors meeting Rule 230C1 (f)	Supply cables over 750 V, ungrounded equipment cases, 750 V to 22 kV, ungrounded portions of guys meeting Rules 215C2 and 279A1, or 300 V, or neutral conductors meeting Rule 230C1 (f)	Unguarded rigid live parts over 750 V to 22 kV, ungrounded equipment cases, 750 V to 22 kV, ungrounded portions of guys meeting Rules 215C2 and 279A1, or 300 V, or neutral conductors meeting Rule 230C1 (f)	Open supply conductors over 750 V to 22 kV (f)
b. Vertical					
(1) Over open roofs or floors readily accessible to pedestrians	10 ft	11 ft	12 ft	14 ft	15 ft
(2) Over under-eave balconies, decks, or similar structures readily accessible to pedestrians	10 ft	11 ft	12 ft	14 ft	15 ft

NOTE: The clearances shown in this table are computed by adding the applicable Mechanical and Electrical (M&E) value of Table A-1 to the applicable Reference Component of Table A-2b of Appendix A.

Table 234-2 Clearances

Table 234-2—

Clearance of wires, conductors, cables, and unguarded rigid live parts from bridges

(Voltages are phase to ground for effectively grounded circuits and those other circuits where all ground faults are cleared by promptly de-energizing the faulted section, both initially and following subsequent breaker operations. See the definitions section for voltages of other systems. Clearances are with no wind displacement except where stated in the footnotes below.)

See Rules 234A, 234D1a, and 234H4.)

	Unguarded rigid live parts, 0 to 750 V; noninsulated communication conductors; supply cables of 0 to 750 V meeting Rule 230C2 or 230C3; ungrounded equipment cases, 0 to 750 V; ungrounded portions of guys meeting Rules 215C2 and 279A1 exposed to open supply conductors over 300 V to 750 V (ft)	Supply cables over 750 V meeting Rule 230C2 or 230C3; open supply conductors, 0 to 750 V (ft)	Open supply conductors, over 750 V to 22 kV (ft)	Unguarded rigid live parts, over 750 V to 22 kV; ungrounded equipment cases, 750 V to 22 kV; ungrounded portions of guys meeting Rules 215C2 and 279A1 exposed to open supply conductors of over 750 V to 22 kV (ft)
1. Clearance over bridges ¹				
a. Attached ²	3.0	3.5	5.5	5.0
b. Not attached	10.0	10.5	12.5	12.0
2. Clearance beside, under, or within bridge structure				

Table 234-2— (continued)

Clearance of wires, conductors, cables, and unguarded rigid live parts from bridges

(Voltages are phase to ground for effectively grounded circuits and those other circuits where all ground faults are cleared by promptly de-energizing the faulted section, both initially and following subsequent breaker operations. See the definitions section for voltages of other systems. Clearances are with no wind displacement except where stated in the footnotes below.)

See Rules 234A, 234D1a, and 234H4.)

	Unguarded rigid live parts, 0 to 750 V; noninsulated communication conductors; supply cables of 0 to 750 V meeting Rule 230C2 or 230C3; ungrounded equipment cases, 0 to 750 V; ungrounded portions of guys meeting Rules 215C2 and 279A1 exposed to open supply conductors over 300 V to 750 V (ft)	Supply cables over 750 V meeting Rule 230C2 or 230C3; open supply conductors, 0 to 750 V (ft)	Open supply conductors, over 750 V to 22 kV (ft)	Unguarded rigid live parts, over 750 V to 22 kV; ungrounded equipment cases, 750 V to 22 kV; ungrounded portions of guys meeting Rules 215C2 and 279A1 exposed to open supply conductors of over 750 V to 22 kV (ft)
a. Readily accessible portions of any bridge including wing walls, and bridge attachments				
(1) Attached ³	3.0	3.5	5.5	5.0
(2) Not attached	5.0	5.5	7.5	7.0
b. Ordinarily inaccessible portions of bridges (other than brick, concrete, or masonry) and from abutments ²				
(1) Attached ³	3.0	3.5	5.5	5.0
(2) Not attached	1.0	4.5	6.5	6.0

ft

Table 234-3 Clearances

Table 234-3—Clearance of wires, conductors, cables, or unguarded rigid live parts over or near swimming pools
 (Voltages are phase-to-ground for effective ground strokes and phase-to-phase clearances where a 1 ground fault are cleared by promptly clearing the faulted section, both manually and following subsequent breaker operations. See the definitions section for voltages of other systems.
 Clearances are with no wind displacement.
 See Rules 234A, 234E1, 234E2, and 234H1.)

	Insulated communication conductors and cables; messengers; overhead shield/surge protection wires; effectively grounded guys; ungrounded portions of guys meeting Rules 215C2 and 279A1 exposed to 0 to 750 V; neutral conductors meeting Rule 2401; supply cables meeting Rule 2401 (f)	Unguarded rigid live parts, 0 to 750 V; noninsulated communication conductors; supply cables of 0 to 750 V meeting Rule 230C2 or 230C3; ungrounded portions of guys meeting Rules 215C2 and 279A1 exposed to open supply conductors of over 500 V, in 750 V (f)	Supply cables over 750 V meeting Rule 230C2 or 230C3 open supply conductors; 0 to 750 V (f)	Unguarded rigid live parts over 750 V to 22 kV; ungrounded portions of guys meeting Rules 215C2 and 279A1 exposed to over 750 V to 22 kV (f)	Open supply conductors over 750 V to 22 kV (f)
A Clearance, as measured from the water level, edge of pool deck, diving platform, or adjacent raft	22 ft	22 ft	22 ft	24 ft	25 ft
B Clearance, as measured from the diving platform, fixed water slide, or other fixed pool-related structures	11 ft	14 ft	15 ft	16 ft	17 ft
C Vertical clearance over adjacent land	Clearance shall be as required by Rule 232				

NOTE 1: A, B, and C are shown in Figure 234-1a.

NOTE 2: These clearance values shown in this table are computed by adding the applicable Mechanical and Electrical (M&E) value of Table A1 to the applicable Reference Component of Table A-2 of Appendix A.

1 The portions of span guys between guy attachment and the point of use of guys whose guy attachments that are not effectively grounded shall have clearances based on the highest voltage to which they may be exposed as to a steel conductor or pin.

2 The portions of anchor pins on the lowest insulator meeting Rules 279A1 and 215C2a may have the same clearance as effectively grounded guys.

3 Does not include neutral conductors meeting Rule 2401.

4 These clearance values also apply to guy rods only.

Defining Criteria for Hazard Assessment and Data Collection

- Items on the next two slides are considered hazards that must be addressed in Lexington's Hazard Assessment program
- Data must be collected as observed on a hazard assessment form
- Hazards forms must be turn in no later than the **following working day**
- **Hazards which can cause immediate danger to workers or the public must be addressed same day per section 42 General Rules for employees**

Hazard Assessment Management Program

City of Lexington Inspects lines for Deficiency

The following items are inspected for Overhead:

- CO - Change Out
- BR – Bottom Rot
- CR – Core Rot
- SR – Shell Rot
- TR – Top Rot
- SP – Split Pole
- WD – Woodpecker Damage
- RA – Restricted Access Due to Undergrowth
- PP – Pole out of Plumb
- TT – Tree Close to / Touching Conductor
- 1 – Damaged Crossarm
- 2 – Damaged Pin Insulator
- 3 – Damaged Dead-end Insulators
- 4 – Damaged Spool Insulators
- 5 – Damaged Insulators on Equipment
- 6 – Damaged Service Clamp
- 7- Missing Nuts
- 8 – Missing Bolts
- 10 – Ground Wire Loose / Off Pole / Missing Staples
- 11 – Ground Wire Damaged / Missing
- 12 – Ground Wire Not Bonded to Neutral
- 13 – Transformer Paint Damaged
- 14 – Transformer Leaking Oil
- 15 – Damaged Lighting Arrestor
- 16– Damaged Guy Wire / Anchor
- 17 – Guy Wire(s) Loose
- 18 – Missing Guy./Anchor
- 19 – Primary/Neutral Appears Low
- 20 – Service Secondary Appears Low
- 21 – Excessive Sag Observed in Primary / Neutral
- 22 - Excessive Sag Observed in Services / Secondary
- 23 – Service/Secondary contacting Roof/Structure/Tree
- 24 – Service/Secondary contacting Telephone / Cable / Neutral / Guy

Hazard Assessment Management Program

City of Lexington Inspects lines for Deficiency

The following items are inspected for Underground

- 50 – Equipment Not Secured / Locked
- 51 – Enclosure Broken / Rusted or Punctured
- 52 – Earth on Enclosure Sides
- 53 – Pad / Pedestal Not Level
- 54 – Damaged / Missing Equipment Pad
- 55 – Equipment Leaking Oil
- 56 – Knockout missing
- 57 – Trench Not Sufficiently Backfilled

The following items are Miscellaneous

Denotes Priority Attention

Analyzing Data and Determining Appropriate Actions

- Data collected shall be analyzed when reported by field personnel or contractors.
 - Equipment with recorded conditions or defects that **would not reasonably be expected to endanger human life or property** shall be corrected within one calendar month of identification.
 - Equipment with recorded conditions or defects that **would reasonably be expected to endanger human life or property** shall be promptly corrected, disconnected or isolated.

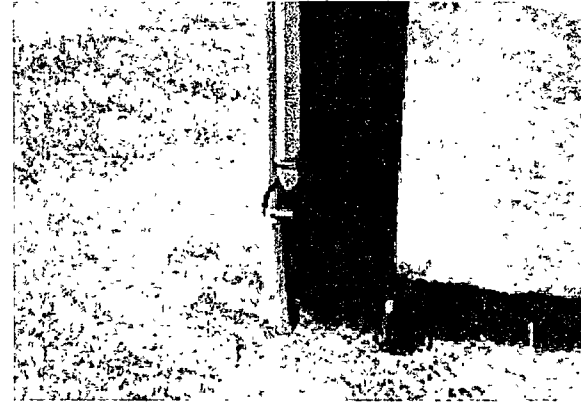
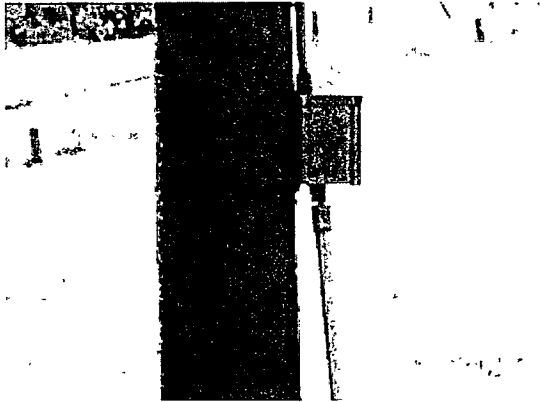
Preparing and Executing an Action Plan

- Actions plans for defects **affecting code compliance** will be developed the day of the inspection on the inspection form.
- Action plans for repair **not affecting code** will be completed as deemed necessary and the action plan will be record on the form.

Hazard Awareness Form

- Areas of the Form To Cover Should Include
 - Hazard Assessment Identification examples
 - Hazard Assessment Identification form
 - Analyzing Data and Determining Appropriate Actions
 - Documenting Action Plans
 - Reporting Requirements

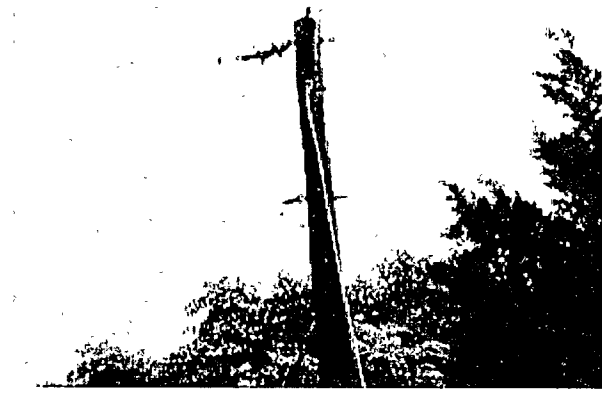
Hazard Recognition Images



Hazard Recognition Images



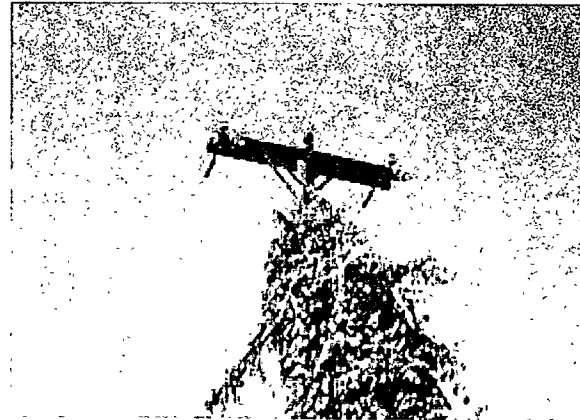
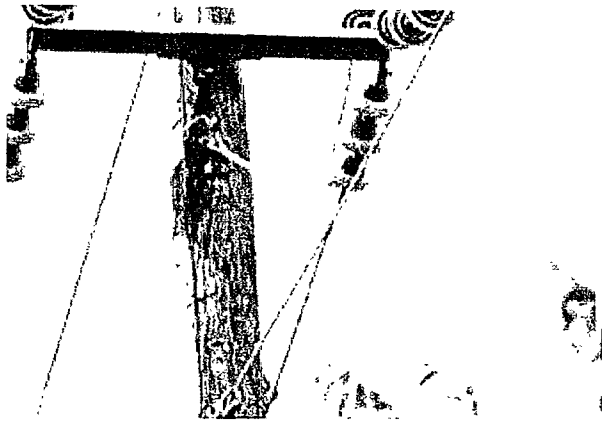
Hazard Recognition Images



Hazard Recognition Images



Hazard Recognition Images



Questions

- Do you have any questions

HB 4150 Training Sign Up Sheet

Hazard Awareness Training

Name	Date Attended
Floyd Lovings	November 16, 2020
Chase Nail	November 16, 2020
Brian Iselt	November 16, 2020
Dustin Corder	November 16, 2020
Lacey Hannes	November 16, 2020

HB 4150 Training Sign Up Sheet

Hazard Awareness Training

Name	Date Attended
Candice Parks	November 16, 2020
Tina Biehle	November 16, 2020
Candace Walch	November 16, 2020

Lexington Hazard Observation Form

Overhead Hazard Criteria - Check appropriate box for observation

•CO - Change Out	2 - Damaged Pin Insulator	14 - Transformer Leaking Oil
•BR - Bottom Rot	3 - Damaged Dead-end Insulators	15 - Damaged Lighting Arrestor
•CR - Core Rot	4 - Damaged Spool Insulators	16 - Damaged Guy Wire / Anchor
•SR - Shell Rot	5 - Damaged Insulators on Equipment	17 - Guy Wire(s) Loose
•TR - Top Rot	6 - Damaged Service Clamp	18 - Missing Guy /Anchor
•SP - Split Pole	7- Missing Nuts	19 - Primary/Neutral Appears Low
•WD - Woodpecker Damage	8 - Missing Bolts	20 - Service Secondary Appears Low
•RA - Restricted Access Due to Undergrowth	10 - Ground Wire Loose / Off Pole / Missing Staples	21 - Excessive Sag Observed in Primary / Neutral
•PP - Pole out of Plumb	11 - Ground Wire Damaged / Missing	22 - Excessive Sag Observed in Services / Secondary
•TT - Tree Close to / Touching Conductor	12 - Ground Wire Not Bonded to Neutral	23 - Service/Secondary contacting Roof/Structure/Tree
1 - Damaged Crossarm	13 - Transformer Paint Damaged	24 - Service/Secondary contacting Telephone / Cable / Neutral / Guy

Underground Hazard Criteria - Check appropriate box for observation

•50 - Equipment Not Secured / Locked	•53 - Pad / Pedestal Not Level	•56 - Knockout missing
•51 - Enclosure Broken / Rusted or Punctured	•54 - Damaged / Missing Equipment Pad	•57 - Trench Not Sufficiently Backfilled
•52 - Earth on Enclosure Sides	•55 - Equipment Leaking Oil	Miscellaneous Item described in detail below

Employee must check appropriate box below for form to be properly filled out.

Non-Emergency Condition: Equipment with recorded conditions or defects that would not reasonably be expected to endanger human life or property shall be corrected within one calendar month of identification.

Emergency Condition: Equipment with recorded conditions or defects that would reasonably be expected to endanger human life or property shall be promptly corrected, disconnected or isolated

Written description of the hazard by observer:

Location of Observation:

Observer Name:

Date of Observation:

Date Corrected:

Send Result Report

MFP



T45Kafk 345.101

Firmware Version 2V8_S000.002.151 2020.08.27

RFE0X06869

06/01/2021 11:35

[2V8_1000 001 402] [2ND_1100 001 007]

Job No.: 002847

Total Time: 0°04'33"

Page: 051

Complete

Document: doc00284720210601112921

FAX

From: City of Lexington

Fax: (979) 773-3649

Phone: (979) 773-2221

To: Davida Dwyer

No.	Date/Time	Destination	Times	Type	Result	Resolution/ECM
001	06/01/21 11:30	5129367003	0°04'33"	FAX	OK	200x100 Normal/On